

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Richland**

Site Summary Level: **Hanford Site**

Project **RL-ER04 / Environmental Restoration Disposal Facility**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0418**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Purpose: This PBS provides for management and integration of activities required to transport waste, operate the ER Disposal Facility, and construct an additional disposal capacity as required to support the ER Project. The ER Disposal Facility (ERDF) is located in the center of the Hanford Site between the 200 East and 200 West Areas.

Work scope within this PBS includes:

Managing and integrating the transportation to ERDF of waste from Remedial Action waste sites, Surveillance and Maintenance and D&D operations to the ERDF.

Managing the operation and monitoring of the ERDF.

Managing and integrating the design and construction of additional disposal capacity for the ERDF.

Managing the interim and final closure of the ERDF.

Scope: The ERDF is a large-scale, evolving landfill, complete with ancillary facilities, designed to receive and isolate low level radioactive, hazardous waste, or a combination thereof. The ERDF is designed to provide disposal capacity, as needed, to accommodate projected ER waste volumes.

The ERDF is a RCRA compliant landfill that is authorized under CERCLA. The initial two cells are each 70 feet deep, 500 feet long, and 750 feet wide. The cells are lined with a RCRA Subtitle C type liner and have a leachate collection system. These cells have nearly reached capacity with an additional two cells ready to come on line in September of 1999.

The ERDF Project also provides the transportation of waste from the waste site and other ER generators to the disposal facility.

The ERDF will be followed by long-term monitoring to ensure disposal standards continue to be met.

Technical Approach: The ERDF is designed to provide disposal capacity, as needed, to accommodate projected ER waste volumes. The total estimated volume of materials to be disposed of in the ERDF is in excess of five million cubic yards.

Any leachate collected from the ERDF will be treated at the 200 Area Effluent Treatment Facility, if required, or recycled for use in ERDF operations.

The ER Waste Disposal Project is being implemented through privatization of both the waste transportation and disposal facility operations.

Expansion of the additional cells is by a fixed price competitively selected contractor. The ER Waste Disposal Project is integrated with the Remedial Action Project to ensure coordination and maximum efficiency among the remediation, transportation and disposal facility operations contractors.

Project Status in FY 2006:

Construction of ERDF cells 5 & 6 will be complete.

The ERDF will have received approximately 2,300,000 cubic meters of waste from the 100 and 300 Areas and other ER generators.

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Post-2006 Project Scope:

An additional 1.3 million cubic meters of waste will remain to be disposed of from the 100 and 300 Areas after FY06.

Project End State

The ERDF is located in the area referenced in the Hanford Site Strategic Plan as the Central Plateau. The ERDF will be constructed, operated and closed in support of the Central Plateau goal and end states.

Central Plateau Goal: The 200 Areas and central plateau will be used for the management of nuclear materials and the collection and disposal of waste materials that remain onsite and for other related and compatible uses. Cleanup levels and disposal standards will be established that are consistent with these long-term uses.

Soil Sites End State

Soil Sites will be closed in place with surface barriers, or remedial alternatives will be established within individual RODs or permit modifications.

Groundwater End State

Groundwater use remains restricted for a yet to be determined period; groundwater intercepted or contained to within designated boundaries.

Final cleanup levels will be established within individual RODs or permit modifications.

Facilities End State

Dismantle or close through entombment D&D facilities currently assigned to the ER program.

Remove non-essential, surplus buildings and facilities that don't have identified post- cleanup uses.

Cost Baseline Comments:

The cost estimates for the ER Project are developed through the use of MCACES and RACER models and activity based estimates for project activities like program management and support.

The contingency for outyears was developed through the use of a "Monte Carlo" analysis and selection of an acceptable level of risk.

Safety & Health Hazards:

Richland Environmental Restoration (ER) Project's primary responsibilities are the cleanup of past-practice waste sites, addressing the contaminated groundwater, and decontamination and decommissioning of surplus facilities. In 1987 the Hanford Site Federal Facility Agreement and Consent Order (TPA) was signed by EPA, Ecology, and DOE. This agreement is the primary driver for essentially all remediation and D&D activities.

The Hanford Site can be grouped into four primary areas: 100, 200, 300, and the remainder of the Hanford Site. This PBS addresses ES&H and mission components associated with operation, transportation and expansion of the Environmental Restoration Disposal Facility (ERDF) Project. The ERDF Project is responsible for the transportation of wastes, operation of the disposal facility, and design and construction of disposal facility expansions. The ERDF supports the remedial action operations planned in the 100 and 300 Areas. Remediation of 100 and 300 Areas waste sites is a primary regulatory priority, and represents stakeholder and Tribal Nation values relative to protection of the Columbia River. In response to stakeholder and Tribal Nation expectations, the priority for remediation is focused towards waste sites that are located along the Columbia River in the 100 and 300 Areas.

Each subproject will conduct a hazard analysis evaluation or an operational readiness review, as necessary.

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Project Description Narratives

Safety & Health Work Performance:

The resources necessary to accomplish the work safely are provided through the Authorization Basis, the Site Health and Safety Program requirements, and through the resources allocated to the site's integrated safety management system in the following functional categories: radiological controls, emergency management, fire protection, industrial hygiene, industrial safety, occupation medical services, management and oversight, transportation safety, nuclear safety and management oversight.

ER resources are planned and allocated into these categories by functional responsibility through the work breakdown structure and resource loaded into the project for each fiscal year. Average hourly labor rates vary among projects based on the work scope and related skills mix.

The Emergency Preparedness functional task includes inspection of emergency facilities and equipment; emergency response team personnel training, drills and exercises relative to personnel contamination; construction accident response; maintaining/updating the current emergency plan based on site-specific hazards; coordination with state and local authorities and federal agencies; responses to worker injuries; and recordable occurrences and of normal events.

The Fire Protection functional task includes related inspections and testing; flammable and explosive material control; review design plans/specifications for compliance with regulations, codes, and standards; and review and concurrence of work packages.

The Industrial Hygiene functional task includes the Chemical Management system, anticipation, recognition, evaluation and control of health hazards; redesign of equipment and tasks; review and approval of work packages; design of airborne fiber wetting systems; respiratory protection standards; respiratory protection equipment supplies; substitution of less hazardous materials; written and verbal communication of real and perceived hazards; personnel protection, and asbestos fiber counts and sample analysis.

The Industrial Safety functional area includes electrical safety; machinery and pressure system safety; hoisting; rigging, and material handling, lockout/tagout; confined space controls; platform, man-lift and scaffolding usage; safe surfaces for walking and working; hand and portable power tool safety; explosives and hazardous material handling, construction safety; review of work packages; site surveillances or subcontractor review.

The Management and Oversight functional task includes S&H documentation, action tracking; S&H self assessment activities; internal audits and surveillance; external S&H program reviews; operational readiness reviews; and Voluntary Protection Program (VPP); trend analysis; lessons learned; coordination and communication with DOE, state and local authorities.

The Management, Oversight, and Reporting functional task includes the coordination of project environmental protection plans, documentation and control, information management, compliance and corrective action tracking, appraisals and self assessments and general environmental monitoring and coordination.

The Occupational Medical Services function task includes medical scheduling, labor and industries, and OSHA reporting; oversight of the Site Occupational Medical provider; hazardous worker or asbestos worker pre/post-job medical screening coordination, tracking; and case management.

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The Nuclear Safety functional task includes providing direction for the implementation of DOE Orders and Standards related to nuclear safety. In addition, the functional group assists the projects in the development, implementation, and oversight of the safety analysis process.

The Radiation Protection functional task includes radiation monitoring equipment and procedures for radiation controls, oversight of personnel and facilities, radiation control monitoring, interlocks, instrumentation for shielding for radiation-generating devices; equipment and procedures used to minimize or mitigate external exposures; and personnel dosimetry, bioassay program, and radiation-exposure records.

The Transportation Safety functional task includes the activities required to ensure safe packaging and transportation of asbestos, radioactive and hazardous materials, and approval of D.O.T. shippers and container documentation. NOTE: The amount of funding made available for this PBS in any fiscal year will determine the work that will be performed, which will, in turn, be a basis for adjustment in the associated S&H requirements.

PBS Comments:

The remediation of the 100 and 300 Area waste sites is a high priority for the regulators, stakeholders, and Tribal Nations. The teamwork and cooperation of all of the parties has resulted in the Richland ER Project being in the position of being able to demonstrate significant and tangible remediation. Records of Decision have been issued and contracts have been placed for remediation, transportation and disposal.

Baseline Validation Narrative:

Baseline validation by Team Associates for DOE.

Validation Report - Richland Environmental Restoration Project FY96 Baseline Validation, May 1996.

The DOE requested an independent contractor, Team Associates, to perform a validation of the Richland Environmental Restoration Project. This validation was a follow up of the validation performed for the FY 1995 Baseline. Estimate models with near-term implementation schedules and total project summary costs were reviewed. The validation was broken down into three distinct efforts consistent with the validation objectives.

1) An in-depth review of MCACES models provided by DOE was performed

2) A review of near-term schedules for 100 BC and 300 FF areas to evaluate reasonableness and feasibility of achievement.

3) A top down assessment of the cost estimating process for consistency of approach to identify opportunities for improvement.

There is a formal validation of the

current baseline (developed in October 1998 and approved in January 1999) scheduled for March 1999.

General PBS Information

Project Validated? Yes **Date Validated:** 5/31/1996

Has Headquarters reviewed and approved project? Yes

Date Project was Added: 12/1/1997

Baseline Submission Date:

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General PBS Information

FEDPLAN Project?	Yes														
Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other							
	Y	Y													

Project Identification Information

DOE Project Manager: Owen Robertson

DOE Project Manager Phone Number: 509-373-6295

DOE Project Manager Fax Number: 509-376-4360

DOE Project Manager e-mail address: owen_jr_robertson@rl.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	226,784	535,076	761,860	16,636	18,201	25,159	20,678	29,953	17,434	18,661	18,549	25,454	26,868	27,170	20,900	
PBS Baseline (constant 1999 dollars)	210,129	282,607	492,736	16,636	18,201	25,159	20,678	29,953	16,976	17,693	17,107	22,836	23,426	23,066	17,277	
PBS EM Baseline (current year dollars)	226,784	535,076	761,860	16,636	18,201	25,159	20,678	29,953	17,434	18,661	18,549	25,454	26,868	27,170	20,900	
PBS EM Baseline (constant 1999 dollars)	210,129	282,607	492,736	16,636	18,201	25,159	20,678	29,953	16,976	17,693	17,107	22,836	23,426	23,066	17,277	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	21,455	37,429	37,860	26,086	93,544	24,222	27,666	31,607	36,109	87,432	111,666	0				
PBS Baseline (constant 1999 dollars)	17,269	29,335	28,893	19,384	64,217	14,554	14,551	14,549	14,549	30,836	34,470	0				
PBS EM Baseline (current year dollars)	21,455	37,429	37,860	26,086	93,544	24,222	27,666	31,607	36,109	87,432	111,666	0				
PBS EM Baseline (constant 1999 dollars)	17,269	29,335	28,893	19,384	64,217	14,554	14,551	14,549	14,549	30,836	34,470	0				

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.70%	2.80%	2.80%	2.90%	2.70%	2.70%	2.70%	2.70%	2.70%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%				

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/1944

Current Projected End Date of Project: 9/30/2044

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars): 492,184 Actual 1997 Cost: 18,201 Actual 1998 Cost: 20,678

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Project Reconciliation

Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	453,305	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	12,239
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	465,544		

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	465,544	
Additional Amount to Reconcile (+):	-14,603	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	450,941	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
ERDF CELLS 3 & 4 READY TO ACCEPT REMEDIATION WASTE	M-16-92B	12/31/1999	12/31/1999	12/31/1999	12/31/1999		Y				
Begin ER Disposal Facility (ERDF) Project	PBS-97-035		2/28/1997								
PBS Mission Completion	PBS-MC-035		9/30/2044								
PBS Project End	PBS-PE-035		9/30/2044								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
ERDF CELLS 3 & 4 READY TO	M-16-92B										

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
ACCEPT REMEDIATION WASTE											
Begin ER Disposal Facility (ERDF) Project	PBS-97-035			Y							Administrative input to document the start of this PBS.
PBS Mission Completion	PBS-MC-035					Y					Administrative input to document the mission completion of this PBS.
PBS Project End	PBS-PE-035				Y						Administrative input to document the project end of this PBS.

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
Rem. Waste														
Disposed	M3	3,203,771.50	2,659,253.50	5,863,025.00	0.00		0.00	288,822.00	335,862.00	275,534.50	328,651.50	347,872.50	336,737.50	433,168.50
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	Planned 2036 - 2040
Rem. Waste														
Disposed	M3	433,168.50	432,085.50	425,037.50	409,167.50	434,118.50	414,329.50	312,692.50	730,307.50	6,214.00	98,965.00	177,775.00	75,684.00	
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total				
Rem. Waste														
Disposed	M3									5,561,629.00				

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